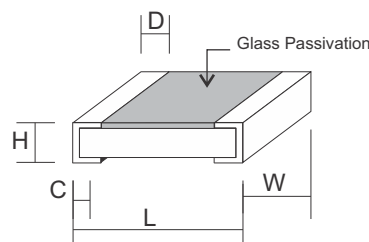


**INTRODUCTION**

The RMP Series is a higher power (high wattage) version of the standard RM Series Thick Film SMD Resistor. The RMP Series SMD Resistor is made with a specially formulated substrate and with an advanced process used to deposit the film. As a result, power ratings surpass standard series, and they are ANTI-SULFUR. These resistors are AEC-Q200 qualified and are suitable for all applications (automotive, lighting, power, etc).

- Basic Thick Film Resistors see RM Series
- High Power Thick Film see RMH Series
- Anti-Sulfur Thick Film Resistors see RMS Series
- Thin Film Resistor see RMT series
- Fusible Resistors see RMF Series
- Thick Film Array Chip see RCN Series
- Metal Array Low-Resistance see LR Series

**DIMENSIONS**



| Size Code     | Max. Dimension (mm) |           |           |           |           |
|---------------|---------------------|-----------|-----------|-----------|-----------|
|               | L                   | W         | H         | C         | D         |
| RMP06 (0603)  | 1.60±0.20           | 0.80±0.15 | 0.40±0.10 | 0.20±0.10 | 0.20±0.10 |
| RMP10 (0805)  | 2.00±0.20           | 1.25±0.15 | 0.50±0.15 | 0.30±0.15 | 0.40±0.15 |
| RMP12 (1206)  | 3.05±0.10           | 1.60±0.20 | 0.55±0.15 | 0.40±0.20 | 0.50±0.20 |
| RMP25 (1210)  | 3.05±0.10           | 2.50±0.20 | 0.55±0.15 | 0.50±0.20 | 0.50±0.20 |
| RMP50 (2010)  | 5.00±0.20           | 2.50±0.20 | 0.55±0.10 | 0.60±0.20 | 0.60±0.20 |
| RMP50S (1812) | 4.50±0.10           | 3.00±0.10 | 0.55±0.05 | 0.55±0.20 | 0.70±0.20 |
| RMP2W (2512)  | 6.30±0.20           | 3.20±0.20 | 0.55±0.10 | 0.60±0.20 | 0.60±0.20 |
| RMP2WS (1218) | 3.10±0.10           | 4.60±0.10 | 0.55±0.05 | 0.40±0.20 | 0.50±0.20 |

**PART NUMBER EXAMPLE**

**RMP 10 R - 10K - J**



**RESISTANCE CODE**

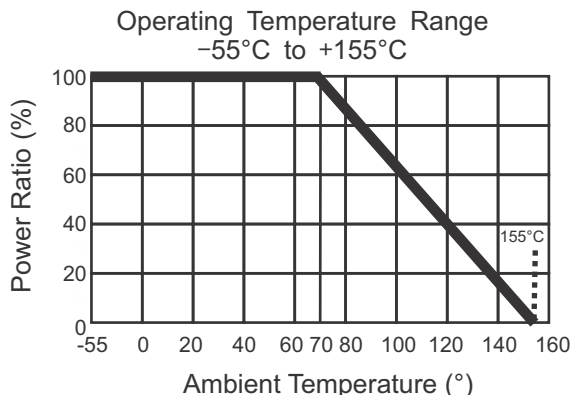
|      |     |      |      |     |         |
|------|-----|------|------|-----|---------|
| Ohms | 0.0 | 100  | 1.5K | 15K | 1.5 Meg |
| Code | 0R0 | 100R | 1K5  | 15K | 1M5     |

**SIZE CODE & RESISTANCE RANGE**

| Code   | Size   | Rated Power at 70°C | Max. Working Voltage | Max. Overload Voltage | T.C.R. (PPM/°C) | Resistance Range       |            |            |
|--------|--------|---------------------|----------------------|-----------------------|-----------------|------------------------|------------|------------|
|        |        |                     |                      |                       |                 | B (±0.1%)<br>D (±0.5%) | F (±1%)    | J (±5%)    |
| RMP06  | (0603) | 0.125W              | 50V                  | 100V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP10  | (0805) | 0.25W               | 150V                 | 300V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP12  | (1206) | 0.50W               | 200V                 | 400V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP25  | (1210) | 0.66W               | 200V                 | 400V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP50  | (2010) | 1.0W                | 200V                 | 400V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP50S | (1812) | 1.0W                | 200V                 | 400V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP2W  | (2512) | 2.0W                | 250V                 | 500V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |
| RMP2WS | (1218) | 2.0W                | 250V                 | 500V                  | ±400            | —                      | 1Ω ~ 9.9Ω  | 1Ω ~ 9.9Ω  |
|        |        |                     |                      |                       | ±200            | —                      | —          | 10Ω ~ 10MΩ |
|        |        |                     |                      |                       | ±100            | 10Ω ~ 1MΩ              | 10Ω ~ 10MΩ | —          |

■ **PERFORMANCE CHARACTERISTICS**

■ **Power Derating Curve**



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70°C. For operation at ambient temperature in excess of 70°C, the load should be derated in accordance with figure of derating Curve.

■ **Voltage Rating or Current Rating**

Resistance Range:  $\geq 1\Omega$

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as follows:

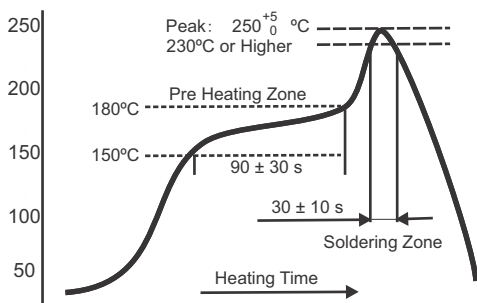
$$E = \sqrt{P \times R}$$

E = Rated Voltage (V)  
P = Power Rating (W)  
R = Nominal Resistance ( $\Omega$ )

■ **Operation and Storage Temperature**

|                       | MIN   | MAX  |
|-----------------------|-------|------|
| Operation temperature | -55°C | 70°C |
| Storage temperature   | 20°C  | 30°C |
| Storage humidity      | 30%   | 70°C |

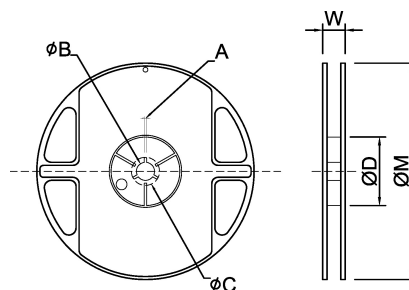
■ **Soldering Profile**



**TEST PROCEDURES & REQUIREMENTS**

| Test Item                                      | Test Method              | Procedure   | Requirements   |
|--|--------------------------|---|--|
| Temperature Coefficient of Resistance (T.C.R.) | JIS C 5201-1 Clause 4.8  | -55°C ~ +155°C, 20°C is the reference temperature   | Refer to Ratings   |
| Short Time Overload                            | JIS C 5201-1 Clause 4.13 | General:<br>2.5 times RCWV or Max. Overload voltage for 5 seconds<br>High Power:<br>2.5 times RCWV or Max. Overload voltage for 2 seconds                 | ±1: ±(1.0%+0.05Ω)<br>±5: ±(2.0%+0.1Ω)                        |
| IR Reflow                                      | Sony SS-00254            |   | ±1: ±(1.0%+0.05Ω)<br>±5: ±(2.0%+0.1Ω)                        |
| Leaching                                       | Sony SS-00254-9          | 260 ±5°C for 30 seconds   | > 95% Coverage   |
| Soldering Heat                                 | JIS C 5201-1 Clause 4.18 | 260 ±5°C for 10 seconds   | ±1: ±(0.5%+0.05Ω)<br>±5: ±(1.0%+0.05Ω)                       |
| Temperature Cycling                            | JIS C 5201-1 Clause 4.19 | -55°C ~ +155°C, 5 cycles  | 0.1% ' 0.5% ' 1%<br>±(0.5%+0.05Ω)<br>2% ' 5%<br>±(1.0%+0.1Ω) |
| Electric Iron                                  | Sony SS-00254-5          | Preheating temperature: 350 ± 5°C<br>Electric Iron preheating time: 3 +1/-0 sec.  | ±1: ±(0.5%+0.05Ω)<br>±5: ±(1.0%+0.05Ω)                       |
| Resistance to Solvent                          | JIS C 5201-1 Clause 4.29 | The tested resistor be immersed into isopropyl alcohol of 20~25°C for 60 seconds.<br>Then the resistor is left in the room for 48 hours.                  | ±1: ±(0.5%+0.05Ω)<br>±5: ±(1.0%+0.05Ω)                       |
| Load Life in Humidity                          | JIS C 5201-1 Clause 4.24 | 40 ± 2°C, 90~95% R.H. or Max. working voltage for 1000 hours with 1.5 hrs "ON" and 0.5hr "OFF".   | 0.1% ' 0.5% ' 1%<br>±(0.5%+0.05Ω)<br>2% ' 5%<br>±(3.0%+0.1Ω) |
| Load Life (Endurance)                          | JIS C 5201-1 Clause 4.25 | 70 ± 2°C, or Max. working voltage for 1000 hours with 1.5 hrs "ON" and 0.5hr "OFF".   | 0.1% ' 0.5% ' 1%<br>±(1.0%+0.05Ω)<br>2% ' 5%<br>±(3.0%+0.1Ω) |
| Terminal Bending Strength                      | JIS C 5201-1 Clause 4.33 | Bending once for 5 seconds<br>D: RMP Series 0402 ' 0603 ' 0805 = 5mm<br>RMP Series 1206 ' 1210 ' 1812 = 3mm<br>RMP Series 1218 ' 2010 ' 2512 ' 2030 = 2mm | ±1: ±(1.0%+0.05Ω)<br>±5: ±(1.0%+0.05Ω)                       |
| Insulation Resistance                          | JIS C 5201-1 Clause 4.6  | Max Overload Voltage for 1 min.   | ≥ 10G  |

■ **PACKAGE & DIMENSION (mm)**

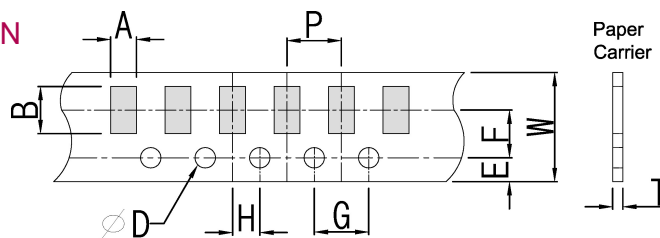


Unit: mm

| Type          | Size           | A         | ΦB         | ΦC       | ΦD        | W          | ΦM        |
|---------------|----------------|-----------|------------|----------|-----------|------------|-----------|
| RMP06 (0603)  | 7" 5K / Reel   | 2.0 ± 0.5 | 13.5 ± 1.0 | 21 ± 1.0 | 60 ± 1.0  | 11.5 ± 2.0 | 178 ± 2.0 |
| RMP10 (0805)  | 10" 10K / Reel | 2.0 ± 0.5 | 13.5 ± 1.0 | 21 ± 1.0 | 100 ± 1.0 | 11.5 ± 2.0 | 254 ± 2.0 |
| RMP12 (1206)  | 13" 20K / Reel | 2.0 ± 0.5 | 13.5 ± 1.0 | 21 ± 1.0 | 100 ± 1.0 | 11.5 ± 2.0 | 330 ± 2.0 |
| RMP25 (1210)  | 7" 5K / Reel   | 2.0 ± 0.5 | 13.5 ± 1.0 | 21 ± 1.0 | 60 ± 1.0  | 11.5 ± 2.0 | 178 ± 2.0 |
| RMP50 (2010)  | 7" 4K / Reel   | 2.0 ± 0.5 | 13.5 ± 1.0 | 21 ± 1.0 | 60 ± 1.0  | 16.0 ± 2.0 | 178 ± 2.0 |
| RMP50S (1812) |                |           |            |          |           |            |           |
| RMP2W (2512)  |                |           |            |          |           |            |           |
| RMP2WS (1218) |                |           |            |          |           |            |           |

■ **TAPING SPECIFICATION**

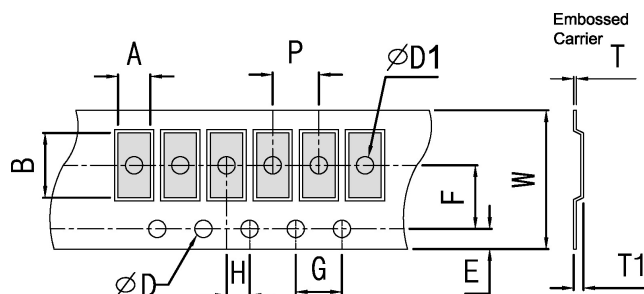
Paper Type  
(P = 2.0 ± 0.1)



Unit: mm

| Type         | A           | B           | W          | E           | F          | G          | H          | T           | ΦD          |
|--------------|-------------|-------------|------------|-------------|------------|------------|------------|-------------|-------------|
| RMP06 (0603) | 1.05 ± 0.20 | 1.80 ± 0.20 | 8.0 ± 0.20 | 1.75 ± 0.10 | 3.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.60 ± 0.10 | 1.50 ± 0.10 |
| RMP10 (0805) | 1.55 ± 0.20 | 2.30 ± 0.20 | 8.0 ± 0.20 | 1.75 ± 0.10 | 3.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.60 ± 0.10 | 1.50 ± 0.10 |
| RMP12 (1206) | 1.90 ± 0.20 | 3.50 ± 0.20 | 8.0 ± 0.20 | 1.75 ± 0.10 | 3.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.60 ± 0.10 | 1.50 ± 0.10 |
| RMP25 (1210) | 2.85 ± 0.20 | 3.50 ± 0.20 | 8.0 ± 0.20 | 1.75 ± 0.10 | 3.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.60 ± 0.10 | 1.50 ± 0.10 |

Embossed Type  
(P = 4.0 ± 0.1)



Unit: mm

| Type          | A           | B           | W         | E           | F          | G          | H          | T           | ΦD          | ΦD1         | T1          |
|---------------|-------------|-------------|-----------|-------------|------------|------------|------------|-------------|-------------|-------------|-------------|
| RMP50 (2010)  | 2.8 ± 0.20  | 5.60 ± 0.20 | 12 ± 0.10 | 1.75 ± 0.10 | 5.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.23 ± 0.10 | 1.50 ± 0.10 | 1.50 ± 0.10 | 0.85 ± 0.15 |
| RMP50S (1812) | 3.40 ± 0.20 | 6.70 ± 0.20 | 12 ± 0.10 | 1.75 ± 0.10 | 5.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.23 ± 0.10 | 1.50 ± 0.10 | 1.50 ± 0.10 | 0.85 ± 0.15 |
| RMP2W (2512)  | 3.30 ± 0.20 | 4.60 ± 0.20 | 12 ± 0.10 | 1.75 ± 0.10 | 5.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.23 ± 0.10 | 1.50 ± 0.10 | 1.50 ± 0.10 | 0.85 ± 0.15 |
| RMP2WS (1218) | 3.30 ± 0.20 | 4.60 ± 0.20 | 12 ± 0.10 | 1.75 ± 0.10 | 5.5 ± 0.05 | 4.0 ± 0.10 | 2.0 ± 0.05 | 0.23 ± 0.10 | 1.50 ± 0.10 | 1.50 ± 0.10 | 0.85 ± 0.15 |